1999

U of M Sheep Program: What We Are Doing and What We Have Learned

Bill Head
University of Minnesota

U OF M

U OF M SHEEP PROGRAM: WHAT WE ARE DOING AND WHAT WE HAVE LEARNED

Bill Head
West Central Research and Outreach Center
Morris, MN

SHEEP 99-5

INTRODUCTION

The University of Minnesota sheep program went through a major change in production management three years ago. The flock had typically been managed as a farm flock that lambed in January and February. The ewes would go to pasture after lambs were weaned and the lambs were finished out in confinement. Three years ago this changed.

The flock production system has moved to a forage based system. The ewes are lambed in May and September on pasture. The ewes are wintered on pasture and are only in confinement during the breeding season. The flock has also grown in numbers at WCROC from 120 ewes three years ago to 500 ewes now. This allows us the opportunity to conduct interdisciplinary systems research on a large number of animals.

Research has taken an interdisciplinary tum. By this we mean that we have a team of researchers that work on projects to get the most out of our research dollar. We have assembled a team that consists of animal scientists, forage agronomists, ag economists, soil scientists, and water quality specialists to better address questions that producers ask. Recent research has focused primarily in three areas 1) animal performance in a forage based production system (pre- and post-weaning), 2) extending the grazing season, and 3) the economics of our research findings.

Prepared for Sheep Day, June 10, 1999

RESEARCH

Ewe Milk Production

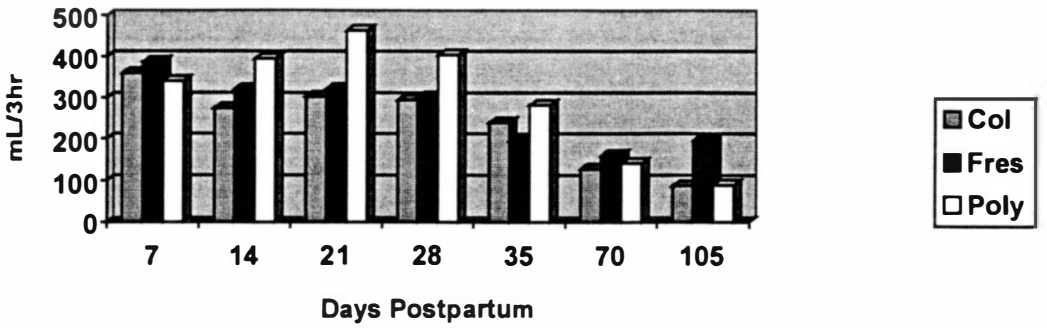
We have been investigating ewe and lamb production and milk production between different breeds selected for different traits. We use Columbia (selected for growth), Polypay (selected for litter size) and East Friesian (selected for milk production) and compared milk production and ewe and lamb production and physiological difference between the breeds while grazing.

This study uses 20 ewes from each breed that are selected at lambing. We use ewes that were ultrasounded and confirmed to have 2 corpra lutea and gave birth to twin lambs. We do this so that we can select ewes for the study that are "geared" physiologically to milk for twins. Ewes that are selected for the study are then milked on exactly 7, 14, 21, 28, 35, 70, and 105 days post lambing to determine and compare milk production between the breeds. Ewe and lamb blood samples are collected on these same days. Ewes and lambs were also weighed at 2 weeks intervals.

What we have found is that our Polypay ewes are producing more milk at peak lactation than the Columbia or Friesian ewes (figure 1). However, it appears that the Polypay lambs (77 lbs) do not fully utilize this extra milk production to increase weaning weights, as they are the lightest in weaning weight compared to Columbia (90 lbs) and Friesian (79 lbs)lambs

Polypay ewes lost less weight during lactation than other ewes. Columbia and Friesian ewes lost body weight during lactation (-8.8 lbs; -2.3 lbs respectively) comapred to Polypay ewes that actually gained on average 1.0 lbs during

Figure 1. Ewe Milk Production



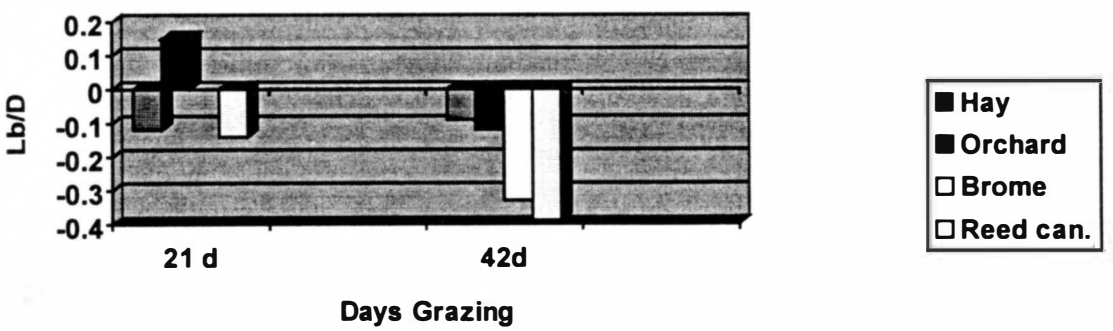
lactation. This would indicate that there is a difference in nutrient partitioning between the breeds. This is further indicated when looking at the fact that Friesian ewes are our most effiecent (.62 lbs of lamb per lb of ewe) compared to Columbia (.52 lbs of lamb per lb of ewe) and Polypay (.59 lbs of lamb per lb of ewe). However, as producers, we must look at the bottom line which is total pounds produced. The Columbia ewes produced on average 90 lb of lambs at 90 days compared to Friesian ewes (79 lbs lamb at 90 days) and Polypay ewes (77 lbs of lamb at 90 days).

Stockpile Grazing

One problem that we face in a forage based production system in the upper Midwest is the shortness of the grazing season. If we could figure out management strategies that would increase our grazing period then we could save money in purchased feed costs to the ewe.

This last fall we conducted a study that we designed to evaluate animal performance grazing stockpiled grasses late into the fall. We used 98 Targhee cross yearling ewes in the study. Ewes were split into 12 groups that grazed 4 different treatments (3 replicates per treatment). Ewes were placed on one of the four following treatments 1) smooth brome grass 2) orchard grass, 3) reed canary grass, or 4) control (ewes fed brome grass hay). Ewes were weighed onto the study on September 29 and grazed the treatments until November 10 (42 days). Ewes were weighed at the beginning, middle, and end of the study. Ewes that grazed the orchard grass gained weight during the first 21 d of the study while ewes that grazed brome grass weight did not change (figure 2). However, ewes that received either the brome hay or grazed reed canary lost weight during the first and second period of the study.

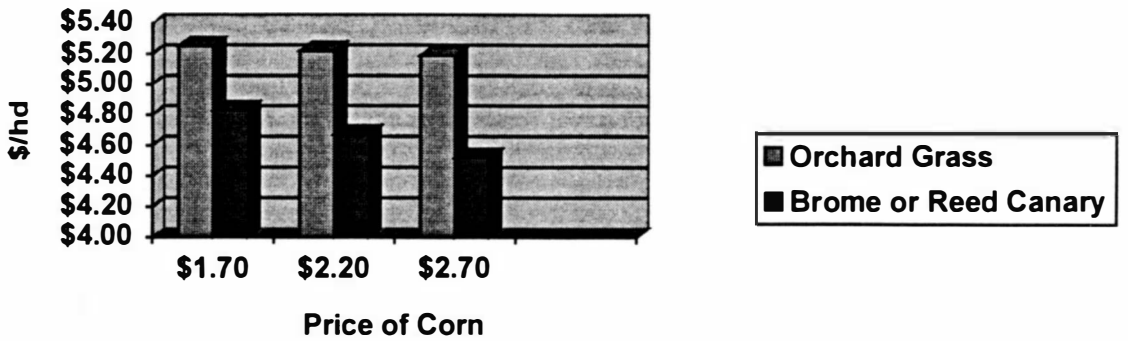
Figure 2. Ewe Weight Gain



Ewes that grazed orchard grass and brome grass both lost weight during the second period (figure 2).

Even though ewes were loosing weight during the latter part of the study, this may fit into production systems that lamb later in the year. Ewes that lamb in April or May would best fit the stock pile grazing strategy. Your flushing program can counteract the weight loss. In fact, you may see better efficiency early in the flushing program due to compensatory gain. Depending on the price of corn and species of grass grazed, a producer could say from $4.50 to $5.25 in ewe feed costs (figure 3).

Figure 3. Net Savings at Different Corn Prices



Lamb Finishing

Finishing lambs on high quality fall forage could provide a producer economic options to finishing lambs. Investigating alternative feed sources can also save in labor and feed costs. Over the past 2 years we have been finishing lambs by either grazing fall forages or by feeding alternative feed sources available to producers. We have compared these systems and looked at the economics of each option.

One hundred and twenty lambs have been finished each year on one of four treatments. These treatments include 1) feeding alfalfa leaf meal (ALM), 2) a typical corn, soybean meal hay diet, 3) grazing turnips, and 4) grazing alfalfa. Thirty lambs were assigned to each treatment and there were three replicates per treatment each year.

Lambs that grazed alfalfa, or were fed either ration in the feedlot had similar performance. Lambs that grazed turnips have been the lowest performing each year. However, lambs that grazed turnips have had the lowest cost per lb of gain when compared to the other treatments (table 1).

Lambs that received the ALM had similar performance and carcass characteristics to lambs that received the corn, soybean meal, and alfalfa diet or that grazed alfalfa. This indicates that ALM could be a valuable alternative to soybean meal as protein supplement or alfalfa hay as a forage source if the price is right.

Table 1. Costs per pound gain for lambs finished in drylot or grazing forage

Feed	Pasture Cost	Ration Cost	Total Cost
ALM	$0.00	$0.49	$0.49
Hay/Corn	$0.00	$0.44	$0.44
Alfalfa Graze	$0.32	$0.25	$0.44
Turnip Graze	$0.20	$0.68	